

fed, Englishmen more resistant than negroes to tuberculosis for the same reason, and Polynesians less resistant than both races to a multitude of diseases because they are worse fed.

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EGYPT AND BABYLONIA.

Egypt and Western Asia in the Light of Recent Discoveries. By L. W. King and H. R. Hall. Pp. viii+480; illustrated. (London: Society for Promoting Christian Knowledge, 1907.) Price 10s.

THIS handsome volume from the pens of Messrs. King and Hall, of the British Museum, is intended as a supplement, or, as the authors modestly express it, "an appendix or addendum," to include all the most recent results of discoveries in Egypt and Western Asia, and thereby bring up to date the three volumes of Prof. Maspero on "The Ancient History of the Peoples of the Classic Orient," which the Society for Promoting Christian Knowledge issued between 1894 and 1896.

The period since the last volume of Prof. Maspero's history appeared has been one very rich in discovery, and archaeologists have been busy with the spade in the Greek islands and mainland, in Asia Minor, the Euphrates and Tigris valleys, as well as in Egypt and Nubia, with most startling results. In 1894 we were almost in the dark as to Egyptian history prior to the time of Seneferu, the last king of Manetho's Third Dynasty, and prehistoric Egypt was practically unknown. The so-called Minoan civilisation of Crete was undreamt of, and hardly anything was known about the early peoples of Syria and Asia Minor. Now, thanks mainly to the work of M. de Morgan, Prof. Flinders Petrie, Dr. Arthur Evans, and Prof. Winckler, we can extend our vista far beyond the horizon of 1896.

It is with the discovery of prehistoric Egypt that the volume before us opens, and here the authors bring together the latest results of the explorer in the field of prehistoric antiquities in the Nile Valley. They finally dispose of the old theory maintained by Petrie and Blankenhorn that the desert plateaus on both sides of the valley were in Palæolithic days clothed with forest, and they bring forward the more reasonable one promulgated by Beadnell that the torrents which are sometimes experienced in the desert at the present day would have been enough to have cut out the deep ravines or *wadis* in the limestone rock such as we see at Thebes in the famous ravine called the Valley of the Tombs of the Kings. Whether Palæolithic man in Egypt—where he is represented by thousands of flint tools from the desert plateaus—was contemporary with the Cave man of Europe we do not know; nor are there any data whereby even a rough estimate can be made as to when the Palæolithic period was succeeded by the Neolithic. For a considerable time anterior to the First Dynasty, copper as well as stone weapons were in use, so that even before the beginning of the historical age the Egyptians were living in the "Chalcolithic" period. The beginning of the Dynastic age is placed by Messrs. King and Hall at about 4500 B.C. (p. 13), but this

does not at all agree with the latest researches into the vexed question of Egyptian chronology, which tend rather to diminish than to lengthen out the hitherto accepted chronology. A most important monograph on this subject was written by Prof. Eduard Meyer in 1904, and is printed in the *Abhandlungen* of the Königl. Preuss. Akademie der Wissenschaften (with a *Nachträge*, 1908); but this the authors do not seem to know, nor do they refer to Prof. Breasted's concise summary of the facts relating to Egyptian chronology in the first volume of his "Ancient Records." A perusal of Meyer's or Breasted's works will show that there is very good reason for placing the beginning of the First Dynasty at not earlier than about the year 3500 B.C.

Regarding the question as to the origin of the Egyptians, Messrs. King and Hall point out that in the early dynastic period two races lived in Egypt which differed considerably in type and also in burial customs. The Dynastic people, they believe, came originally to the Nile Valley from the shores of the Red Sea by way of the Wady Hammamat, to Koptos and Kûs.

"From many indications," they say, "it would seem probable that these conquerors were of Babylonian origin, or that the culture they brought with them (possibly from Arabia) was ultimately of Babylonian origin."

The Lower Egyptians, who were conquered by the Dynastic race, were possibly of Mediterranean stock, akin to the primitive inhabitants of Palestine, Greece, Italy, and Spain.

The second chapter deals with Abydos and the first three Egyptian dynasties, but the authors do not appear to have any very clear idea as to the real history of this early period. On p. 73 it is said that the "King Sma" is "possibly identical with Aha or Narmer, more probably the latter." There is, in fact, no evidence whatever that Sma is the name of a king or even of a person at all, while, on the other hand, it is a well-known title meaning "consort," and was often assumed by queens. On pp. 61-62 it is said that Narmer is not represented at Abydos, yet at least half-a-dozen monuments bearing his name have come from there. There has been much discussion as to the validity of Dr. Borchardt's identification of King Aha with Menes, the traditional founder of the monarchy; Messrs. King and Hall dismiss the subject by saying (p. 76): "Whether Aha was called Men or not it seems evident that he and Narmer were jointly the originals of the legendary Mena." The nomen of Khasekhem, we note, is given as "Besh," but this is very doubtful; the name of the last king of the First Dynasty is transliterated everywhere as Qa, whereas, surely, the right reading is Qa-a, "the high of hand."

In the third chapter the authors discuss recent discoveries relating to Memphis and the Pyramids, and advance the theory that the city of Memphis was built by Merbapa, the Miebis of Manetho's list, and not "by the legendary and confused Mena." In support of this it may be noted that Merbapa heads the list of kings of the Sakkara Canon.

The fourth, fifth, and sixth chapters are devoted to

an account of recent research in Western Asia, and are important as giving a summary of all the latest results achieved by explorers in the valleys of the Tigris and Euphrates. The authors repeat the view recently brought forward by Mr. King that the first Babylonian dynasty was in part contemporaneous with the second, and that the latter consisted of Sumerian kings who had established themselves in the Sea Country. This contemporaneity of the first and second Babylonian dynasty, of course, brings down the chronology of Babylonian history, and this fact must henceforward be borne in mind by Egyptologists, for there are several synchronisms between Babylonian and Egyptian history which have been well established. The authors deal in the sixth chapter with early Babylonian life and customs, and this is certainly the most interesting part of the book. Since Prof. Maspero wrote his history, two new sources of information have been made available which have greatly increased our knowledge of the constitution of the early Babylonian State, and of the conditions of life of the various classes of the population. The most important new source is the great Code of Laws drawn up by Hammurâbi for the guidance of his people, and defining the duties and privileges of all classes of his subjects. This was discovered by M. de Morgan at Susa, and is one of the most remarkable documents that has ever fallen to the lot of an excavator to unearth. The other new source of information consists of a series of royal letters written by kings of the First Dynasty to the governors and officials of various great cities in Babylonia. These tablets are now preserved in the British Museum, and the range of subjects with which they deal is enormous, and, as the authors say, "there is scarcely one of them which does not add to our knowledge of the period."

The three last chapters are devoted to the most recent discoveries in connection with the history of the later periods of the Egyptian and Assyrian Empires. A good summary is to be found here of all the latest finds at Thebes, including those in the Valley of the Tombs of the Kings, which have so enriched the National Museum at Cairo.

POTENTIAL ENERGY AND THE FIGURE OF THE EARTH.

Das mechanische Potential nach Vorlesungen, von L. Boltzmann bearbeitet, und Die Theorie der Figur der Erde, zur Einführung in die höhere Geodäsie. By Dr. H. Buchholtz. Erster Teil. Pp. xvi+470. (Leipzig: J. A. Barth, 1908.) Price 15 marks.

AN intimate knowledge of the theory of potential energy is of undoubted value to the student of theoretical geodesy, and it is with this object that Dr. Buchholtz has given us in this book a complete and exhaustive treatise on the subject since its inception by Newton down to the present day. But it is not alone to those interested in the complex study of the figure of the earth that this portion of the book will appeal; for in the application of the potential theory, not only is gained a knowledge of some of the most elegant mathematical theorems, but at the same time a deep insight into nature is obtained.

It would be difficult to over-estimate the excellent treatment of the subject by Dr. Buchholtz, who in his preface acknowledges his debt of gratitude and inspiration to his former teacher, the late Prof. Boltzmann, to whom is due a great number of the explanations and theorems met with in the book.

The author takes his reader through the whole history of the subject, and the demonstrations and mathematical proofs are very clearly put. Indeed, it is the clearness and fulness of the several mathematical steps, which are so often omitted in treatises of this nature to the consequent disappointment and discouragement of the majority of students, that make the book so generally attractive.

After giving the necessary definitions and explanations of the various terms and formulæ due to all the learned philosophers who have made this subject their particular study, Dr. Buchholtz completes the first portion of the book with two very able chapters on the theory of the attraction of the ellipsoid and the potential of the La Place spheroid. In both chapters nothing has been omitted which could help the student fully to understand the complexity of this difficult question.

In the second portion of the book, which deals with higher geodesy, Dr. Buchholtz has been content to follow closely on the lines adopted by Col. Clarke in his "Geodesy." Nothing, indeed, could be more flattering to the famous English geodesist than the full use he has made of his work, from which nearly all the numerical examples dealing with the subject have been taken in their complete form.

Dr. Buchholtz, however, does not give an historical account of the various geodetic enterprises which have supplied the data for the solution of the many problems introduced, and which form by no means the least attractive portion of the English work.

The two chapters which make up this second portion of the book are confined to pure theory, but let it be said at once that the treatment is most thorough and complete, and the mathematical proofs extremely clear and easy to follow. In this respect the book is much more one for the beginner than Clarke's.

The first chapter gives a sketch of the classical theories of the form of the earth; and the various proofs by Clairant and La Place, which are of great historical interest and on which are based their respective important theorems, are fully treated. This is especially the case in the sections dealing with the well-known formula for the value of gravity at any latitude, with La Place's law of density and the deduction from it, and the observed constant of precession of the earth's ellipticity. The determination of the figure of the earth as a form of equilibrium is also fully dealt with in this chapter.

The second chapter is devoted to the calculation of distances, azimuths, and triangles on the spheroid and to "geodetic lines." It is chiefly taken from Clarke, and indeed a large portion of it is a literal translation of this work. In the matter of dealing with "geodetic lines," Dr. Buchholtz has given a far more exhaustive discussion than is to be found in most books on geodesy, the section dealing with the geometrical properties of the geodetic being excellent.